

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS



सत्यमेव जयते

TECHNICAL INSTRUCTION NO. TI/IN/0038

Technical Instruction for Earthing practices on various types of Bridges

February, 2019

Jointly Issued By

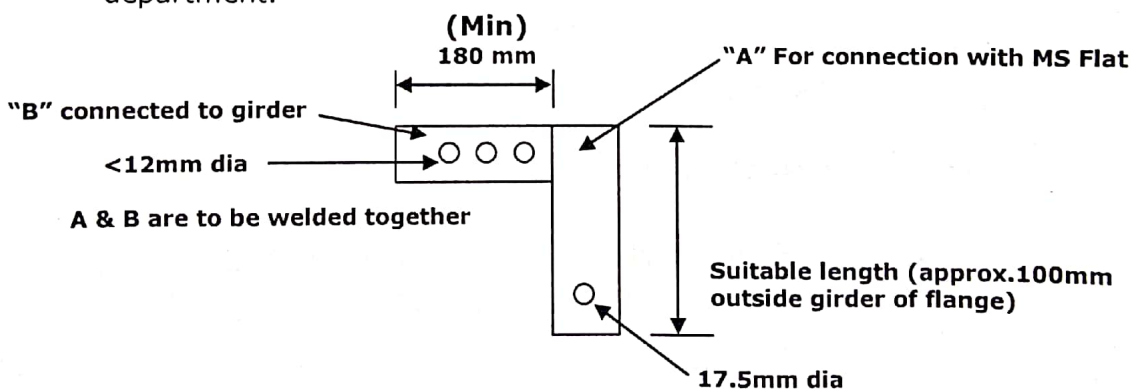
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Designation	SSE/TI-CIVIL	SSE/B&S	DTI-C	DTI-2	Dir/B&S/SB
					PED/TI

- 1.0 Scope:** Earthing practices to be followed on various types of bridges.
- 2.0 Background:** Railway Board, vide letter no 2014/RE/161/19/Vol-I dated 10.09.18 directed RDSO for issuing the comprehensive guidelines for earthing practices on various types of bridges.
- 3.0 Objective:** Main objective is to prevent non-standard practices in the field during electrification and maintenance. These guidelines also will be of use by the Railways in granting permission to Electrification agencies & Maintenance Organizations for making connections/ welding/ drilling hole etc on Bridge structures for the purpose of earthing & bonding. It will benefit the Electrification agency for appropriately submitting the proposal to approving authority and getting faster approval.
- 4.0 Applicability:** Earthing & Bonding over various types of Bridges.
- 5.0 Technical Instructions:** Following guidelines will be applicable for provision of Earthing & Bonding over various type of Bridges:

- (i) **No holes by gas cutting** shall be made in steel parts of any type of bridges.
- (ii) **No holes by any means** shall be made in the web of the steel girder of any type of bridges.
- (iii) Following process can done over steel parts of the bridges with the permission of competent authority of engineering department by submitting proposal with sketch:
  - a. Circular Holes (not more than 12mm in diameter) by **drilling**.
  - b. **L-shape** steel Part shall be used for weld joint to the steel part of bridges. Welded part shall be painted as per the guidelines of engineering department.



- (iv) The attachment through welding or drilling of holes (hole diameter less than 12mm) shall be done in the End-portion of the bridge span beyond the support bearings i.e. the connection/attachment shall not be done within the **effective-span** of the bridge.
- (v) Provisions available in the Bridge drawing for Earthing & Bonding connections shall for welding/bolting.
- (vi) Earthing & Bonding code shall be implemented.